CLAIMS

1. A rotary device for dispersing a gas in a molten metal, said device comprising a hollow shaft at one end of which is a rotor, said rotor having a roof and a base, said roof and base being spaced apart and connected by a plurality of dividers, a passage being defined between each adjacent pair of dividers and the roof and the base, each passage having an inlet and first and second outlets, a flow path being defined through the shaft into the inlets of the passages and out of the first and second outlets, wherein each first outlet is disposed radially outwardly of the respective inlet and arranged to disperse gas laterally of the rotor in use, and wherein each second outlet is disposed in the roof of the rotor and arranged to disperse gas upwardly from the rotor in use.

2. A rotor as claimed in claim 1, wherein the rotor is formed from a solid block of material, the roof and the base being constituted by upper and lower regions of the block respectively, an intermediate region of the block having bores therein which define the passages, each divider being defined by the intermediate region between each bore.

3. A rotor as claimed in claim 2, wherein each bore is of uniform diameter.

4. A rotor as claimed in claim 1, wherein the dividers are in the form of vanes and each passage is a compartment defined between adjacent vanes.

5. A device as claimed in any preceding claim, wherein each second outlet is a cut-out extending inwardly from the outer periphery of the roof.

6. A device as claimed in claim 5, wherein the cut-outs are part-circular or semi-circular and are preferably arranged symmetrically around the rotor.

7. A device as claimed in any preceding claim wherein the second outlets do not extend downwardly as far as the base of the rotor.

8. A device as claimed in any preceding claim, wherein the rotor has four passages defined by four dividers with eight second outlets in the form of semi-circular cut-outs arranged symmetrically around the rotor.

9. A device as claimed in any preceding claim, wherein the rotor is provided with a chamber in which mixing of molten metal and gas can take place.

10. A device as claimed in claim 9, wherein the chamber is located radially inwardly of the inlets and has an opening in the base of the rotor, such that in use when the device rotates, molten metal is drawn into the chamber through the base of the rotor where it is mixed with gas passing into the chamber from the shaft, the metal/gas dispersion then being pumped into the passages through the inlets before being discharged from the rotor through the first and second outlets.

11. A device as claimed in any preceding claim, wherein the first outlets have a greater cross-sectional area than the inlets.

12. A device as claimed in any preceding claim wherein the rotor is circular in transverse cross section and is preferably attached to the shaft at its centre.

13. A device as claimed in any preceding claim, wherein the shaft and rotor are formed separately, the two being attached together by releasable fixing means.

14. A device as claimed in any preceding claim wherein the rotor is formed from a solid block of graphite.

15. A method of treating molten metal comprising the steps of:-

(i) immersing the rotor and part of the shaft of the device of any one of claims 1 to 14 in the molten metal to be treated,

(ii) rotating the shaft, and

(iii) passing gas and optionally one or more treatment substances down the shaft and into the molten metal via the rotor, whereby to degas the metal.

16. The method as claimed in claim 15, wherein the metal to be treated is selected from aluminium, magnesium, copper and alloys thereof.

17. The method as claimed in claim 15 or 16, wherein the gas used in step (iii) is selected from one or more of chlorine, a chlorinated hydrocarbon, nitrogen and argon.

18. The method as claimed in claim 17, wherein the gas used in step (iii) is dry nitrogen

19. The method as claimed in any one of claims 15 to 18, wherein the treatment comprises a grain refinement and/or modification and/or cleaning treatment and the optional treatment substance of step (iii) is a granulated cleaning/drossing, grain refining and/or modification species.

20. The method as claimed in claim 19, wherein the optional treatment substance is selected from one or more of titanium salts and/or boron salts, sodium salts and strontium master alloy.

21. The method as claimed in any one of claims 15 to 20 wherein the rotation speed of step (ii) is 400 rpm or less.

22. A rotor for use in the rotary device of any one of claims 1 to 14, said rotor comprising a roof and a base, said roof and base being spaced apart and connected by a plurality of dividers, a passage being defined between each adjacent pair of dividers and the roof and the base, each passage having a gas inlet and first and second gas outlets, wherein each first outlet is disposed radially outwardly of the respective inlet and arranged to disperse gas laterally of the rotor in use, and wherein each second outlet is disposed in the roof of the rotor and arranged to disperse gas upwardly from the rotor in use.